

WHAT IS CLAIMED IS:

1. An image printing apparatus for printing an image on the basis of input printing data by scanning a carriage for holding a printhead having a plurality of printing elements, relatively to a printing medium in a direction crossing an alignment direction of the plurality of printing elements, comprising:

first driving means for grouping the plurality of printing elements into a plurality of blocks every predetermined number of printing elements, and driving the plurality of blocks by time division;

second driving means for driving any one of the plurality of blocks by using, as a driving timing signal for performing printing once, a plurality of driving timing signals respectively used to drive the plurality of blocks by time division; and

image printing means for selecting either one of said first and second driving means, and printing the image.

2. The apparatus according to claim 1, wherein said first driving means generates as the driving timing signal a double-pulse signal containing a preheat pulse for preheating the printing elements and a main pulse for driving the printing elements, or generates as the driving timing signal a single-pulse signal formed from only the main pulse.

3. The apparatus according to claim 2, wherein said

second driving means uses two double-pulse signals or two single-pulse signals as a first decimation pulse signal for performing printing once, or uses at least three double-pulse signals as a second decimation pulse
5 signal for performing printing once.

4. The apparatus according to claim 1, wherein said image printing means comprises temperature detection means for detecting a temperature of the printhead, and selects either one of said first and second driving
10 means in accordance with the temperature of the printhead.

5. The apparatus according to claim 4, wherein said image printing means selects either one of double-pulse and single-pulse signals generated by said first
15 driving means in accordance with the temperature of the printhead.

6. The apparatus according to claim 4, wherein said image printing means selects either one of first and second decimation pulse signals generated by said
20 second driving means in accordance with the temperature of the printhead.

7. The apparatus according to claim 1, wherein said image printing means comprises driving count detection means for detecting the driving count of printing
25 elements to be simultaneously driven when the image is printed based on the printing data, and selects either one of said first and second driving means on the basis

of the driving count.

8. The apparatus according to claim 7, wherein said image printing means selects either one of double-pulse and single-pulse signals generated by said first driving means in accordance with the driving count.

9. The apparatus according to claim 7, wherein said image printing means selects either one of first and second decimation pulse signals generated by said second driving means in accordance with the driving count.

10. The apparatus according to claim 1, wherein said image printing means comprises discharge amount detection means for detecting a discharge amount discharged from a printing element necessary to print a predetermined image area when the image is printed based on the printing data, and selects either one of said first and second driving means in accordance with the discharge amount.

11. The apparatus according to claim 1, wherein said image printing means selects either one of double-pulse and single-pulse signals generated by said first driving means in accordance with the discharge amount.

12. The apparatus according to claim 10, wherein said image printing means selects either one of first and second decimation pulse signals generated by said second driving means in accordance with the discharge amount.

13. The apparatus according to claim 1, wherein the printing element uses ink including a black ink, a cyan ink, a magenta ink, or a yellow ink.
14. The apparatus according to claim 1, wherein the number of blocks changes depending on the kind of ink.
- 5 15. The apparatus according to claim 1, wherein the printhead includes an ink-jet printhead which discharges ink to print an image.
16. The apparatus according to claim 1, wherein the printhead includes a printhead which discharges ink by using heat energy, and comprises a heat energy converter for generating heat energy to be applied to the ink.
17. A method of controlling an image printing apparatus for printing an image on the basis of input printing data by scanning a carriage for holding a printhead having a plurality of printing elements, relatively to a printing medium in a direction crossing an alignment direction of the plurality of printing elements, comprising:
- 20 the first driving step of grouping the plurality of printing elements into a plurality of blocks every predetermined number of printing elements;
- the plurality of blocks by time division;
- the second driving step of driving any one of the plurality of blocks by using, as a driving timing signal for performing printing once, a plurality of
- 25

driving timing signals respectively used to drive the plurality of blocks by time division; and

the image printing step of selecting either one of the first driving step and the second driving step,
5 and printing the image.

18. The method according to claim 17, wherein in the first driving step, a double-pulse signal containing a preheat pulse for preheating the printing elements and a main pulse for driving the printing elements is
10 generated as the driving timing signal, or a single-pulse signal formed from only the main pulse is generated as the driving timing signal.

19. The method according to claim 18, wherein in the second driving step, two double-pulse signals or two
15 single-pulse signals are used as a first decimation pulse signal for performing printing once, or at least three double-pulse signals are used as a second decimation pulse signal for performing printing once.

20. The method according to claim 17, wherein the
20 image printing step comprises the temperature detection step of detecting a temperature of the printhead, and in the image printing step, either one of the first and second driving steps is selected in accordance with the temperature of the printhead.

21. The method according to claim 20, wherein in the image printing step, either one of double-pulse and single-pulse signals generated in the first driving

step is selected in accordance with the temperature of the printhead.

22. The method according to claim 20, wherein in the image printing step, either one of first and second
5 decimation pulse signals generated in the second driving step is selected in accordance with the temperature of the printhead.

23. The method according to claim 17, wherein the image printing step comprises the driving count
10 detection step of detecting the driving count of printing elements to be simultaneously driven when the image is printed based on the printing data, and in the image printing step, either one of the first and second driving steps is selected on the basis of the driving
15 count.

24. The method according to claim 17, wherein in the image printing step, either one of double-pulse and single-pulse signals generated in the first driving step is selected in accordance with the driving count.

20 25. The method according to claim 23, wherein in the image printing step, either one of first and second decimation pulse signals generated in the second driving step is selected in accordance with the driving count.

25 26. The method according to claim 17, wherein the image printing step comprises the discharge amount detection step of detecting a discharge amount

discharged from a printing element necessary to print a predetermined image area when the image is printed based on the printing data, and in the image printing step, either one of the first and second driving steps is selected in accordance with the discharge amount.

27. The method according to claim 26, wherein in the image printing step, either one of double-pulse and single-pulse signals generated in the first driving step is selected in accordance with the discharge amount.

28. The method according to claim 26, wherein in the image printing step, either one of first and second decimation pulse signals generated in the second driving step is selected in accordance with the discharge amount.

29. The method according to claim 17, wherein the printing element uses ink including a black ink, a cyan ink, a magenta ink, or a yellow ink.

30. The method according to claim 17, wherein the number of blocks changes depending on the kind of ink.

31. The method according to claim 17, wherein the printhead includes an ink-jet printhead which discharges ink to print an image.

32. The method according to claim 17, wherein the printhead includes a printhead which discharges ink by using heat energy, and comprises a heat energy converter for generating heat energy to be applied to

the ink.

33. A computer-readable storage medium which stores a control program for controlling an image printing apparatus for printing an image on the basis of input
5 printing data by scanning a carriage (701) for holding a printhead (702) having a plurality of printing elements, relatively to a printing medium in a direction crossing an alignment direction of the plurality of printing elements, the control program
10 comprising:

a program code of the first driving step (S840) of grouping the plurality of printing elements into a plurality of blocks every predetermined number of printing elements, and driving the plurality of blocks
15 by time division,

a program code of the second driving step (S840) of driving any one of the plurality of blocks by using, as a driving timing signal for performing printing once, a plurality of driving timing signals
20 respectively used to drive the plurality of blocks by time division, and

a program code of the image printing step (S850) of selecting either one of the first driving step (S840) and the second driving step (S840), and printing
25 the image.